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Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of

Ditlow, et al.

Serial No.: 09/943,829

Group Art Unit: 2195

Filed: August 31, 2001

Examiner: Tang, K.

For: **METHOD AND APPARATUS TO MANAGE MULTI-COMPUTER
SUPPLY**

Commissioner of Patents
Alexandria, VA 22313-1450

APPELLANTS' SECOND SUPPLEMENTAL BRIEF ON APPEAL

Sir:

In response to the Office Action mailed on May 18, 2006, Appellants continue to respectfully appeal the rejection of claims 1-20 in the Office Action dated April 19, 2005. A Notice of Appeal was timely filed on July 19, 2005, and a Brief on Appeal was timely filed on September 19, 2005.

In an Office Action mailed on November 29, 2005, the Examiner re-opened prosecution, citing new references, US Patent Application Publication US 2002/0059625 to Kurauchi, previously-cited US Patent 6,105,053 to Kimmel et al., and newly-cited US Patent 6,016,503 to Overby et al. Appellants evaluated this new rejection and, believing that it fails to further prosecution in any meaningful manner, filed a Petition Under 37 CFR §1.181 to Re-instate Appeal on February 28, 2006, along with a Supplemental Brief to address the new rejection based on Kurauchi.

In the Office Action mailed on May 18, 2006, the Examiner again re-opened prosecution, citing a new reference, US Patent 6,601,084 to Bhaskaran et al. Appellants have evaluated this new rejection and believe it fails to meet the initial burden of a *prima* Docket BUR920000146US1

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

facie rejection. Therefore, Appellants do not believe that this new rejection furthers prosecution and have filed herewith a second Petition Under 37 CFR §1.181 to Re-instate Appeal.

This Second Supplemental Brief is submitted in response to this latest Office Action, explaining how the new rejection in this Office Action fails to meet the initial burden of a *prima facie* rejection and is, therefore, no better than the previous two rejections currently in the process of Appeal.

I. REAL PARTY IN INTEREST

The real party in interest is International Business Machines Corporation, assignee of 100% interest of the above-referenced patent application.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellants, Appellants' legal representative or Assignee, which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-20, all of the claims presently pending in the application, stand rejected on prior art grounds.

More specifically, claims 1-4, 6-10, 12-16, and 18-20 stand rejected under 35 USC §103(a) as allegedly unpatentable over US Patent 6,601,084 to Bhaskaran et al, further in view of US Patent Application US 2002/0059625 to Kurauchi, and claims 5, 11, and 17 stand rejected under 35 USC §103(a) as unpatentable over Bhaskaran/Kurauchi, further in view of US Patent 6,016,503 to Oberby et al.

Docket BUR920000146US1

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

IV. STATUS OF AMENDMENTS

An Amendment Under 37 CFR §1.116 was filed on June 20, 2005, although no claim amendments were included therein. Therefore, the version of the claims in the Appendix reflects the claim amendments of the Amendment Under 37 CFR §1.111 filed on January 4, 2005.

In the Advisory Action dated July 21, 2005, the Examiner indicated that the arguments in the Amendment Under 37 CFR §1.116 were not persuasive and that the rejections based on Robertazzi were maintained as based on the Examiner's "... broadest reasonable interpretation consistent with the specification."

A Notice of Appeal was filed on August 19, 2005, and an Appeal Brief was filed on September 19, 2005.

In an Office Action mailed on November 29, 2005, the Examiner re-opened prosecution, citing new references, US Patent Application Publication US 2002/0059625 to Kurauchi, previously-cited US Patent 6,105,053 to Kimmel et al., and newly-cited US Patent 6,016,503 to Overby et al.

A Petition Under 37 CFR §1.181 to Re-instate Appeal on February 28, 2006, along with a Supplemental Appeal Brief to address the new rejection based on Kurauchi.

In the Office Action mailed on May 18, 2006, the Examiner again re-opened prosecution, citing a new reference, US Patent 6,601,084 to Bhaskaran et al. Appellants do not believe that this new rejection furthers prosecution and have filed herewith a second Petition Under 37 CFR §1.181 to Re-instate Appeal, along with this second Supplemental Appeal Brief.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Appellants' invention, as disclosed and claimed in independent claim 1, is directed to a computer-implemented method for determining a listing of hosts on a network to perform a parallel application (lines 15-16 of page 1, lines 16-19 of page 4, lines 1-3 of page 6, Figure 1), including determining a listing of all possible hosts on the network for Docket BUR920000146US1

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

performing the parallel application (lines 16-18 of page 1, line 19 of page 6 through line 1 of page 7). For each of the possible hosts (line 2 of page 18) a current capacity and a current utilization is determined and a difference between the current capacity and the current utilization is calculated (lines 2-4 of page 7, line 12 of page 13, line 3 of page 18 through line 9 of page 19, equation [4] in Figure 7). A listing of hosts is selected from the listing of all possible hosts, based on sorting the calculated differences (lines 18-19 of page 1, lines 4-5 of page 7, lines 6-21 of page 24, Equation [6a] of Figure 7).

The remaining independent claims have similar language.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Appellants present the following issue for review by the Board of Patent Appeals and Interferences:

ISSUE 1: THE REJECTION BASED ON NEWLY-CITED US PATENT 6,601,084 TO BHASKARAN ET AL

Whether the rejection under 35 U.S.C. § 103(a) can be maintained for any of the claims, when the newly-cited primary reference fails to address parallel-processing, uses a different method from that described in the claims, and its modification would change its principle of operation and defeat the purpose for which it was intended?

VII. ARGUMENTS

ISSUE #1: THE REJECTIONS AS BASED ON BHASKARAN ET AL

THE NEW PRIOR ART REJECTIONS BASED ON KURAUCHI

The Examiner alleges that the present invention defined by claims 1-4, 6-10, 12-16, and 18-20 are rendered obvious when newly-cited primary reference, US Patent 6,601,084 to Bhaskaran is modified by previously-cited US Patent Application US 2002/0059625 to Kurauchi, and claims 5, 11, and 17 are rendered obvious when Bhaskaran/Kurauchi, is further modified by previously-cited US Patent 6,016,503 to Oberby et al.

Docket BUR920000146US1

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

**APPELLANTS' ANALYSIS OF THE REJECTION BASED ON
BHASKARAN**

Appellants first point out that newly-cited primary reference Bhaskaran is directed toward the problem of dynamic load balance for multiple network servers and does not address the parallel processing environment as required by the independent claims. Therefore, this reference is non-analogous art for the present invention.

As well understood by one having ordinary skill in the art, parallel processing involves, in general, the distribution of processing tasks to be executed independently on separate CPUs. This generalized description is confirmed by the following definition from the 6th Edition of the "Dictionary of Computer and Internet Terms", D. A. Downing, Ph.D., et al., 1998, Barron's Educational Series, Inc.:

"PARALLEL PROCESSING computation carried out at the same time on different CPUs, or on a CPU that can execute more than one instruction at the exact same time. By contrast, most multitasking is accomplished by making a single CPU switch its attention among several tasks. This is called concurrent processing or timesharing."

Appellants submit that the processing described in primary reference Bhaskaran is not parallel processing, as addressed by the present invention and as required by the plain meaning of the claim language. Simply having the servers on a network operating in parallel or a computer directing a process to balance the loads for the network servers does not bestow the property of "parallel processing." Each computer in Bhaskaran that performs its role as a server is operating independently of the other servers and a computer executing the load balancing method is operating on its own.

In contrast, parallel processing would require that more than one of the servers and/or the computer executing the load balancing method are concurrently involved in a common processing, such that each involved computer performs their respective assigned computing tasks for that common processing. This common processing, with each of several computers performing their respective share of the processing computations in parallel, is not present in Bhaskaran, since neither the server function nor the load balancing requires that the various computers be executing in parallel a shared processing.

Docket BUR920000146US1

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

Likewise, the simple broadcast system of secondary reference Kurauchi does not address a parallel processing problem. Rather, in Kurauchi each hardware module performs its respective and independent task, designed as an independent specific broadcasting task assigned by the CPU. When its task is completed, the hardware modules of Kurauchi have no processing result that is a partial computation of a parallel processing problem to be returned to a central location to be merged into results from the other modules.

Therefore, the task assignment process in this reference is merely that of ensuring that the various independent tasks related to broadcasting are appropriately assigned to an available hardware module within the limits of the nonlinear editing device's resources. This assignment process is not in any way related to assigning tasks for a parallel processing problem, as this term is understood in the art, even if the broadcast tasks are separately being executed in parallel by the various hardware modules.

Therefore, Appellants submit that primary reference Bhaskaran and secondary reference Kurauchi are both non-analogous art to that of the present invention that addresses an assignment of tasks for a parallel processing problem.

Hence, turning to the clear language of the claims, in neither primary reference Bhaskaran nor secondary reference Kurauchi is there any teaching or suggestion of: "... determining a listing of hosts on a network to perform a parallel application, said method comprising: determining a listing of all possible hosts on said network for performing said parallel application ...", as required by independent claim 1. The remaining independent claims also make reference to the parallel processing environment.

For this reason alone, Appellants submit that the rejection currently of record fails to meet the initial burden of a *prima facie* rejection and cannot be maintained.

Moreover, Appellants submit that the method in primary reference Bhaskaran, because of its different purpose of balancing loads for servers on a network, also fails to satisfy the plain meaning of the claim language of the independent claims.

More specifically, the goal in Bhaskaran is that of equalizing the load among all of the servers. Therefore, Bhaskaran teaches against the method described by the plain meaning of the claim limitations, since the load balancing method is based upon first Docket BUR920000146US1

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

calculating the relative amount of power for each computer in the network, as expressed by equation 1 at line 35 in column 6. This relative power is the basis that each machine is performing its fair share in the network as determined by its relative power.

Because of this dependence on the relative power of each machine, there is no simple difference between current capacity and current utilization, as required to satisfy the plain meaning of the claim language: "... calculating, for each of said possible hosts, a difference between said current capacity and said current utilization"

Finally, it is also noted that the load balancing Bhaskaran does not satisfy the final claim limitation and cannot be modified to do so, since the goal in this reference is to balance the load evenly through out the network, as explained at lines 42-47 of column 3. Thus, in Bhaskaran all servers will always be performing approximately their fair share as determined based on their relative power level within the network, and, as described at lines 32-38 of column 4, a skew detector determines when a server's performance is outside a tolerable range, and buckets are created to provide additional load to that server.

Thus, in the task being done in Bhaskaran, there is no need to select a listing of hosts, let alone make selections based on a sorting, as required by the plain meaning of the claim language: "... selecting from said listing of all possible hosts a listing of hosts based on sorting said calculated differences."

Appellants further submit that modifying Bhaskaran to select a listing of hosts would defeat the purpose therein of maintaining the work balance within the predetermined tolerance. Therefore, Appellants submit that it would be improper to modify Bhaskaran by secondary reference Kurauchi or any other reference in the manner described by the final claim limitation, and, again, Appellants submit that the rejection currently of record fails to meet the initial burden of a *prima facie* rejection.

Finally, Appellants submit that secondary reference Kurauchi is likewise not directed to parallel processing and is, therefore, also non-analogous art to the present invention. It is further pointed out that Kurauchi addresses the distribution of video data stored in a randomly accessible recording medium, which problem has nothing to do with the problem in primary reference Bhaskaran, that of balancing loads for servers on a network. Therefore, Kurauchi and Bhaskaran are not properly combinable.
Docket BUR920000146US1

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

Relative to Overby, in the exemplary embodiment of the present invention, the utilization is based on CPU, memory, temporary files, and cache for each host machine and how these properties vary over time. Utilization is combined with capacity, normalized and used with a priority when selecting hosts that will solve a parallel problem.

In contrast, Overby's utilization applies to a shared resource, for example, the amount of shared memory used and this utilization is used to manage the shared resource. This is an entirely different concept from that of managing resources on separate machines, let alone doing so for a parallel processing environment.

Therefore, Appellants submit that Overby adds nothing to overcome the basic deficiencies of Bhaskaran and/or Kurauchi.

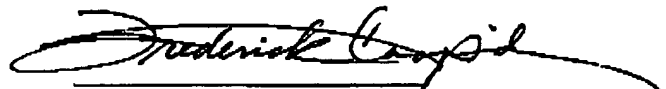
CONCLUSION

In view of the foregoing, Appellants submit that claims 1-20, all the claims presently pending in the application, are clearly enabled and patentably distinct from the prior art of record and in condition for allowance. Thus, the Board is respectfully requested to remove all rejections of claims 1-20.

Please charge any deficiencies and/or credit any overpayments necessary to enter this paper to Assignee's Deposit Account number 09-0456.

Respectfully submitted,

Dated: 8/18/06


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Docket BUR920000146US1

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

VIII. CLAIMS APPENDIX

Claims, as reflected upon entry of the Amendment Under 37 CFR §1.116 filed on
June 20, 2005:

1. (Previously presented) A computer-implemented method determining a listing of hosts
on a network to perform a parallel application, said method comprising:

determining a listing of all possible hosts on said network for performing said
parallel application;

determining, for each of said possible hosts, a current capacity and a current
utilization;

calculating, for each of said possible hosts, a difference between said current
capacity and said current utilization; and

selecting from said listing of all possible hosts a listing of hosts based on sorting
said calculated differences.

2. (Original claim) The method of claim 1, wherein said determination of a listing of
processors is itself a parallel processing application.

3. (Original claim) The method of claim 1, wherein said determination of a listing of
processors is executed in real time concurrently with said parallel application.

Docket BUR920000146US1

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

4. (Original claim) The method of claim 1, further comprising:

providing said selected listing of hosts to an operating system controlling an execution of said parallel application.

5. (Original claim) The method of claim 1, wherein said selecting a listing of hosts from said listing of all possible hosts further comprises a quantification of a history of each said possible host and a consideration of said history in said selecting of a listing.

6. (Original claim) The method of claim 1, wherein said calculating a difference between current capacity and a current utilization further comprises:

normalizing said difference.

7. (Previously presented) A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to determine a listing of hosts on a network to perform a parallel application, said machine-readable instructions comprising:

determining a listing of all possible hosts on said network for performing said parallel application;

determining, for each of said possible hosts, a current capacity and a current utilization;

calculating, for each of said possible hosts, a difference between said current capacity and said current utilization; and

Docket BUR920000146US1

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

selecting from said listing of all possible hosts a listing of hosts based on sorting said calculated differences.

8. (Original claim) The signal-bearing medium of claim 7, wherein said machine-readable instructions are provided to an operating system on said network such that said determination of a listing of processors is itself a parallel processing application.

9. (Original claim) The signal-bearing medium of claim 7, wherein said machine-readable instructions are provided to an operating system on said network such that said determination of a listing of processors is executed in real time concurrently with said parallel application.

10. (Original claim) The signal-bearing medium of claim 7, said machine-readable instructions further comprising:

providing said selected listing of hosts to an operating system controlling an execution of said parallel application.

11. (Original claim) The signal-bearing medium of claim 7, wherein said selecting a listing of hosts from said listing of all possible hosts further comprises a quantification of a history of each said possible host and a consideration of said history in said selecting of a listing.

Docket BUR920000146US1

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

12. (Original claim) The signal-bearing medium of claim 7, wherein said calculating a difference between current capacity and a current utilization further comprises:

normalizing said difference.

13. (Previously presented) A computer network having a plurality of computation resources and an operating system for executing a target parallel application process using at least a subset of said plurality of computation resources, wherein said network includes a method to determine a listing of said computation resources to perform said target parallel application process, said method comprising:

determining a listing of all possible said computation resources on said network for performing said parallel application;

determining, for each of said possible computation resources, a current capacity and a current utilization;

calculating, for each of said possible computation resources, a difference between said current capacity and said current utilization; and

selecting from said listing of all possible computation resources a listing of computation resources based on sorting said calculated differences as said at least a subset of said plurality of computation resources to execute said target parallel application process.

Docket BUR920000146US1

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

14. (Original claim) The computer network of claim 13, wherein said method interfaces to an operating system on said network such that said determination of a listing of computation resources is itself a parallel processing application.
15. (Original claim) The computer network of claim 13, wherein said method interfaces to an operating system on said network such that said determination of a listing of computation resources is executed in real time concurrently with said parallel application.
16. (Original claim) The computer network of claim 13, said method further comprising:
providing said selected listing of computation resources to an operating system
controlling an execution of said parallel application.
17. (Original claim) The computer network of claim 13, wherein said selecting a listing of computation resources from said listing of all possible computation resources further comprises a quantification of a history of each said possible computation resource and a consideration of said history in said selecting of a listing.
18. (Original claim) The computer network of claim 13, wherein said calculating a difference between current capacity and a current utilization further comprises:
normalizing said difference.

Docket BUR920000146US1

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

19. (Previously presented) A computer network having a plurality of computation resources and an operating system for executing a target parallel application process using at least a subset of said plurality of computation resources, wherein said network includes a method to determine a listing of said computation resources to perform said target parallel application process, said method comprising:

means for determining a listing of all possible said computation resources on said network for performing said parallel application;

means for determining, for each of said possible computation resources, a current capacity and a current utilization;

means for calculating, for each of said possible computation resources, a difference between said current capacity and said current utilization; and

means for selecting from said listing of all possible computation resources a listing of computation resources based on sorting said calculated differences to be said at least a subset of said computation resources for executing said target parallel application process.

20. (Original claim) The computer network of claim 19, wherein said method interfaces to an operating system on said network such that said determination of a listing of computation resources is executed in real time concurrently with said parallel application.

Appellants' 2nd Supplemental Brief on Appeal
S/N: 09/943,829

IX. EVIDENCE APPENDIX

(NONE)

X. RELATED PROCEEDINGS APPENDIX

(NONE)

Docket BUR920000146US1

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Today's Date: August 18, 2006

To: Examiner K. Tang, Art Unit: 2195

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In re Application of Ditlow, et al

Serial No.: 09/943,829

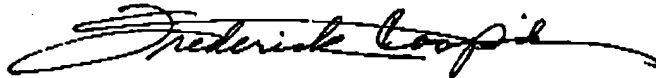
For: METHOD AND APPARATUS TO MANAGE MULTI-COMPUTER SUPPLY

Contents:

- 1. Second Petition to Reinstate Appeal (2 pages)**
- 2. Second Supplemental Appeal Brief (15 pages)**

CERTIFICATION OF TRANSMISSION

I certify that I transmitted via facsimile to (571) 273-8300 this Second Supplemental Appeal Brief and Second Petition to Reinstate Appeal to Examiner K. Tang on August 18, 2006.



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